

Rock Island Arsenal
TNT Building
(Building 251)
Gillespie Avenue and Ramsay Street
Rock Island
Rock Island County
Illinois

HAER No. IL-20-W

HAER
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81-ROCIL
3/251-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
Washington, D.C. 20013-7127

HISTORIC AMERICAN ENGINEERING RECORD

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ROCK ISLAND ARSENAL
TNT BUILDING
(Building 251)
HAER No. IL-20V

Location: Gillespie Avenue and Ramsey Street,
Rock Island Arsenal,
Rock Island,
Rock Island County, Illinois
UTM: 15.704650.4598520
Quad: Davenport East

Date of Construction: 1917-1918

Present Owner and Occupant: U.S. Army

Present Use: Motor repair shop

Significance: Situated in a manufacturing area southwest of the Greek Revival stone shops on Rodman Avenue, the TNT Building was constructed in 1917-1918 as part of an artillery shell production complex. The building's Gothic Revival design mirrored the architectural detailing of the adjacent Artillery Ammunition Assembling Plant (see HAER No. IL-20U). Part of the Rock Island Arsenal National Register Historic District, the TNT Building embodied an equal concern for utilitarian and aesthetic considerations that became increasingly rare during subsequent wartime construction programs.

Historian: Jeffrey A. Hess, February 1985

Architectural Historian: David Arbogast, February 1985

PART 1. HISTORICAL INFORMATION

A. Physical History:

1. Date of erection: The building site was selected in February 1917 (Burr to Chief of Ordnance, February 2, 1917; Babbit to Burr, February 12, 1917). Construction activity commenced in April 1917, and the building was completed in 1918 (War's Greatest Workshop, p. 26).
2. Architect: Westinghouse-Church-Kerr Company of New York (Burr to Chief of Ordnance, April 18, 1917)
3. Original and subsequent owners: U.S. Army.
4. Builder, contractor, supplier: Westinghouse-Church-Kerr Company of New York served as general contractor on a cost plus 10 per cent basis (Completion Report, p. 2).
5. Original plans and construction: On April 18, 1917, Westinghouse-Church-Kerr submitted to the arsenal command a "perspective view" of the proposed artillery ammunition assembling complex, which depicted the TNT Building as an unadorned, one-story, gable-roofed structure, connected on its north facade by two enclosed, overhead, passageways to the south facade of the Artillery Ammunition Assembling Plant (see HAER Photo No. IL-20U-12). Westinghouse-Church-Kerr subsequently revised its design of the building to mirror the Gothic Revival detailing of the adjacent Artillery Ammunition Assembling Plant (HAER No. IL-20U). Plans and elevations to this effect, dated 1918, are on file at the Rock Island Arsenal Engineering Plans and Services Division. They show an "L"-shaped, flat-roofed, one-story structure with crenelations along the roofline and two enclosed, overhead passageways connecting the building's north facade to the south facade of the Artillery Ammunition Assembling Plant.

The construction of the "L"-shaped plan and the two passageways is documented by "a progress map," dated January 18, 1919, in the official Completion Report (n.p.) for the arsenal's World-War-I construction program. A 1945 photograph in the picture collection of the Rock Island Arsenal Historical Office documents the Gothic Revival detailing of the 1918 plans (see HAER Photo No. IL-20V-6). The building's present configuration conforms to the original construction, except that the westernmost overhead passageway has been demolished.

6. Alterations and additions: After 1945, much of the original crenelated detailing along the roofline was replaced by a straight-line parapet surmounted by a metal coping. At an undetermined date, the westernmost overhead passageway was demolished.

B. Historical Context:

On February 2, 1917, the commandant of Rock Island Arsenal, Colonel George W. Burr, informed the War Department in Washington that he had selected a tentative location, about two blocks southwest of the Greek Revival stone shops on Rodman Avenue, for a proposed artillery ammunition assembling complex, which included a TNT Building, a large Assembling Plant (see HAER No. IL-20U), and a small Incinerator Building (HAER No. IL-20Y). Burr explained that the site "will place the main buildings as conveniently as possible for general purposes and at the same time will isolate as much as possible the smaller buildings which are to contain explosives or are to be devoted to the more hazardous operations" (Burr to Chief of Ordnance, February 2, 1917). On February 12, 1917, the War Department wrote Burr that "the general scheme as outlined in preceding letter. . . is approved" (Babbitt to Burr, February 12, 1917).

In selecting an architectural design for the main building in the complex -- the Artillery Ammunition Assembling Plant -- Burr at first considered a Greek Revival motif that would complement the major manufacturing shops on Rodman Avenue. But as he informed the War Department on April 18, 1917:

"The architects tell me that it is extremely difficult to follow the existing building types of the Arsenal in modern buildings in which three-quarters of the wall surface is given over to window space. This construction is necessary in [the Artillery Ammunition Assembling Plant] because of the lighting requirements and it is also most desirable in a plant handling explosives in order that the force of a minor explosion may blow out the windows without damage to the walls of the structure" (Burr to Chief of Ordnance, April 18, 1917).

To satisfy both safety and aesthetic considerations, Burr selected a Gothic Revival style for the Artillery Ammunition Assembling Plant that incorporated large blocks of industrial steel sash in the facades while embellishing the roofline with crenelated detailing. Prepared by Westinghouse-Church-Kerr Company of New York, the design was approved by the War Department on April 20, 1917 (Crozier to Burr, April 20, 1917). Although the architects initially designed

the TNT Building as an unadorned, gable-roofed structure (see HAER Photo No. IL-20U-12), they subsequently adopted a crenelated, Gothic Revival design that harmonized with the adjacent Artillery Ammunition Assembling Plant.

With Westinghouse-Church-Kerr also serving as general contractor, construction of the Artillery Ammunition Assembling Plant began that same April, and was completed in 1918. During the remaining nine months of World War I, the shell loading complex produced approximately 167,000, 155mm howitzer shells (Nothstein and Stephens, p. 259). According to plans on file at the Rock Island Arsenal Engineering Plans and Services Division, the operation used standard technology. In the TNT Building, which was connected by covered passageways to the south facade of the Artillery Ammunition Assembling Plant, TNT was melted in steam-heated kettles and hand-poured into shell bodies. After cooling, the shell bodies were sent to a boring machine, which drilled a small cylindrical hole into the hardened TNT charge to prepare it for the insertion of a detonator. The shell bodies were then delivered through the covered passageways to the Artillery Ammunition Assembling plant, where they were assembled with detonators, primers and fuzes.

The TNT Building remained in shell production until 1920, when it was converted into a laboratory for chemical and metallurgical analysis. After the laboratory was removed to another location in 1924, the building was turned into a motor repair shop (Hanson, p. 120). The TNT Building has been designated as "Building 251" at least since World War II (see HAER Photo No. IL-20V-6; for additional documentation, see HAER No. IL-20).

Prepared by: Jeffrey A. Hess
 MacDonald and Mack Partnership
 February 1985

PART II. ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural character: The building is a small manufacturing building exhibiting a crenellated form of the late Gothic Revival style related to the popular Collegiate gothic of the period, which was normally used for all types of educational buildings. Its application here and in Buildings 250, 133, 139, and 140 is one indication of the versatility of the style.
2. Condition of fabric: The building is not well-maintained and is showing its age, with peeling paint and significant loss of exterior stucco.

B. Description of Exterior:

1. Overall dimensions: The building is roughly L-shaped with a main block running east to west and a wing extending north from the west end of the main block. Overall dimensions are approximately 54' x 205'. The building is one story tall with three small intermediate mezzanines and without basement or attic.
2. Foundation: Reinforced concrete.
3. Walls: Stucco facing on brick and tile backing (HAER Photo Nos. IL-20V-1 and IL-20V-2). Concrete buttresses (HAER Photo Nos. IL-20V-1 and IL-20V-2) rising from the ground to the parapet wall divide the elevations into a regular bay system. Each bay is connected between the buttresses and below the parapet wall by a very shallow, segmental arch (HAER Photo Nos. IL-20V-1 and IL-20V-2). The parapet wall has a projecting concrete coping (HAER Photo Nos. IL-20V-1 and IL-20V-2). The exterior is painted white.
4. Structural systems: A wide variety of structural systems are used in various parts of the building. Wall systems are reinforced concrete and steel frame clad with stuccoed brick and structural clay tile. The floor is reinforced concrete. The roof system is reinforced concrete in parts, reinforced concrete with steel beams (HAER Photo No. IL-20V-5), and a set of three steel trusses (HAER Photo No. IL-2V-4) in other parts.
5. Openings:
 - a. Doorways: Doorways (HAER Photo No. IL-20V-1) are typically centered in each bay of the south elevation. A modern overhead door has been installed in the doorway at the west end of the south elevation. Pedestrian doorways in the window wall typically contain thin steel doors with nine lights over two panels. When closed, they blend with the window sash.
 - b. Windows: Typical bays (HAER Photo No. IL-20V-2) contain 54-light, fixed, industrial, steel sash with each having a set of six, six-light, pivoting sash.
6. Roof:
 - a. Shape, covering: The roof is flat in all sections except that supported by the steel trusses, where it has a low gable form. It is covered with tar and gravel.
 - b. Cornice, eaves: The roof is surrounded by a parapet wall (HAER Photo Nos. IL-20V-1 and IL-20V-2) and has an internal water drainage system tied to an underground drainage system.

C. Description of Interior:

1. Floor plans: For its size, the building has an unusually complex plan. The interior is composed of a seemingly disorganized set of rooms of varying sizes and functions. There are repair shop rooms, battery storage rooms, general storage rooms, an office, and a restroom. At the east end is a pair of offices at a level above that of the rest of the building. The enclosed concrete bridge (HAER Photo No. IL-20V-3) from Building 250 enters at the east end of the north wall.
2. Stairways: There are three stairways serving the building. The office has a straight-run, painted, wood stair to a mezzanine level within the office. It is plain, wood construction with open risers and plain railings. In the northeast corner of the building is a straight-run, painted, wood stair with bottom winders connecting to the landing for the enclosed bridge. It is plain, wood construction with closed risers and a plain railing. In the southeast corner of the building is a short, straight-run, concrete stair leading to the two upper east offices. It has a painted pipe railing.
3. Flooring: All flooring (HAER Photo Nos. IL-20V-4 and IL-20V-5) is painted, poured concrete.
4. Wall and ceiling finishes: All walls and ceilings (HAER Photo Nos. IL-20V-4 and IL-20V-5) are painted concrete.
5. Openings:
 - a. Doorways and doors: Most of the doorways retain their original doors. These doors are standard, five-panelled, wood doors and five-panelled steel in imitation of wood. A few (HAER Photo No. IL-20V-5) have fixed, four-light sash in them.
 - b. Windows: Window openings (HAER Photo No. IL-20V-4) are concrete with no casings or other trim.
6. Hardware: Original hardware survives on all original doors. There are knuckle hinges and knob sets with round, utilitarian brass knobs and rectangular plates. The window sash retain original steel opening mechanisms.
7. Mechanical equipment:
 - a. Heating, air conditioning, ventilation: The building is heated by steam radiators. There is no mechanical air conditioning or ventilation system.

b. Lighting: Artificial illumination is by means of fluorescent electrical fixtures (HAER Photo No. IL-20V-4) supplemented by a few incandescent fixtures (HAER Photo No. IL-20V-5), which may be the only remnants of the original artificial lighting system.

c. Plumbing: No original plumbing fixtures survive.

D. Site:

General setting and orientation: The building is set between Building 250, a heavy gun plant, on the north to which it is connected via the enclosed, concrete bridge, and Building 299, a warehouse, on the south. To its east is Building 254, a storage structure. The Building is surrounded by paved roadways.

Prepared by: David Abrogast
Architectural Conservator
February 1985

PART III. SOURCES OF INFORMATION

A. Original Architectural Drawings:

The Rock Island Arsenal Historical Office has a photograph of a "perspective view" of the building, dated April 18, 1917, which shows an unadorned, gable-roofed, one-story structure connected on its north facade by two enclosed, overhead passageways to the south facade of the Artillery Ammunition Assembling Plant (see HAER Photo No. IL-20U-12). Except for the passageways, the building was not constructed according to this design.

The Rock Island Arsenal Engineering Plans and Services Division has the following original drawings that show the crenelated, Gothic Revival detailing and general building plan of the original construction:

Westinghouse-Church-Kerr Company, "Artillery Ammunition Assembling Plant / T.N.T. Building / East and West Elevations, and Cross Sections," January 4, 1918, No. 2183-E-523, D4009F.

Westinghouse-Church-Kerr Company, "Artillery Ammunition Assembling Plant / T.N.T. Building / North and South Elevations," January 14, 1918, No. 2183-E-522, D40099.

Westinghouse-Church-Kerr Company, "Artillery Ammunition Assembling Plant / T.N.T. Building / Building Plan," January 5, 1918, No. 2183-E-521, R1A B251-A2, D40099B.

B. Early Views:

The picture collection of the Rock Island Arsenal Historical Office has a 1945 photograph documenting the original construction of the south and east facades; the view is captioned, "162 / Looking northwest at Shop 'L' Annex, Building No. 251 / 8 March 1945" (see HAER Photo No. IL-20V-6).

C. Bibliography:

1. Primary and unpublished sources:

Babbit, E. B. to George W. Burr, February 12, 1917. Rock Island Arsenal Historical Office. Letter approving selection of building site.

Burr, George W. to Chief of Ordnance, February 2, 1917. Rock Island Arsenal Historical Office. Letter explaining selection of site and requesting approval of same.

Burr, George W. to Chief of Ordnance, April 18, 1917. Rock Island Arsenal Historical Office. Letter explaining selection of Gothic Revival architectural style for the adjacent Artillery Ammunition Assembling Plant and requesting approval of same.

Crozier to George W. Burr, April 20, 1917. Rock Island Arsenal Historical Office. Letter approving Gothic Revival design for the adjacent Artillery Ammunition Assembling Plant.

Hanson, A. C. "The Rock Island Arsenal Laboratory, 1874 to 1962," 1964. Rock Island Arsenal Historical Office. Describes use of building as a laboratory from 1920 to 1924.

Hess, Jeffrey A., and Mack, Robert C. "Historic Properties Report Rock Island Arsenal, Rock Island, Illinois". Prepared by MacDonald and Mack Partnership, and Building Technology Incorporated for the Historic American Buildings Survey/Historic American Engineering Record, National Park Service, U.S. Department of the Interior, 1985. The report, with accompanying inventory cards, is filed as field records in the Prints and Photographs Division, Library of Congress, under HAER No. IL-20.

Real Property Cards. Rock Island Arsenal Engineering Plans and Services Division. Briefly describes building's structural characteristics and maintenance history.

2. Secondary and published sources:

Completion Report Covering All Construction Projects Accomplished Under Supervision of the Construction Division, U.S. Army at Rock

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Island Arsenal. N. pl.: n. pub., 1922. Rock Island Arsenal Historical Office. Describes planning and construction of building; contains "progress map" documenting construction of the overhead passageways.

Nothstein, Ira O. and Stephens, Clifford W. A History of Rock Island and Rock Island Arsenal from Earliest Times to 1954. Rock Island Arsenal, 1965. 3 vols. Discusses artillery shell production during World War I.

War's Greatest Workshop Rock Island Arsenal. N. pl.: Arsenal Publishing Co. of the Tri-Cities, 1922. Rock Island Arsenal Historical Office. Describes planning and construction of the building.

PART IV. PROJECT INFORMATION

This project was part of a program initiated through a memorandum of agreement between the National Park Service and the U.S. Department of the Army. Stanley J. Fried, Chief, Real Estate Branch of Headquarters DARCOM, and Dr. Robert J. Kapsch, Chief of the Historic American Buildings Survey/Historic American Engineering Record, were program directors. Sally Kress Tompkins of HABS/HAER was program manager, and Robie S. Lange of HABS/HAER was project manager. Building Technology Incorporated, Silver Spring, Maryland, under the direction of William A. Brenner, acted as primary contractor, and MacDonald and Mack Partnership, Minneapolis, was a major subcontractor. The project included a survey of historic properties at Rock Island Arsenal, as well as preparation of an historic properties report and HABS/HAER documentation for 38 buildings. The survey, report, and documentation were completed by Jeffrey A. Hess, historian, Minneapolis; Barbara E. Hightower, historian, Minneapolis; David Arbogast, architectural historian, Iowa City, Iowa; and Robert C. Mack, architect, Minneapolis. The photographs were taken by Robert A. Ryan, J. Ceronie, and Bruce A. Harms of Dennett, Muessig, Ryan, and Associates, Ltd., Iowa City, Iowa. Drawings were produced by John Palmer Low, Minneapolis.